



# Community institutions, social marginalization and the adaptive capacity: A case study of a community forestry user group in the Nepal Himalayas

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## ABSTRACT

Community based adaptation (CBA) to climate change is gaining wider popularity in developing countries, and yet little is known about its effectiveness in reducing the vulnerability of marginalized groups. Integrating the concept of adaptive capacity within an environmental entitlement framework, this study explores whether and how community institutions can enhance the adaptive capacity of socially marginalized groups. Using the case study of a community forestry user group (CFUG) in the middle hills of Nepal, this paper shows that in the context of socio-economic heterogeneity at the wider societal level, it is unrealistic to expect CBA to work successfully for the marginalized groups, unless a concurrent attempt is made to overcome the socio-cultural drivers of marginalization. A key to addressing this is to acknowledge that interactions among different socio-economic groups in community based institutions vary to different extents. Based on this finding, we recommend that CBA initiatives should focus on addressing the intra-community distribution of vulnerability, and be better aligned with efforts to enhance social inclusion.

## 1. Introduction

Community forestry as a local institution and Community Based Natural Resource Management (CBNRM) has been widely studied in the last couple of decades as a means to rural livelihoods (Adhikari, Williams, & Lovett, 2007; Dev & Adhikari, 2007; Thoms, 2008). Such studies have included explorations of the ways in which institutions mediate communities' access and entitlements to resources (Pokharel & Nurse, 2004). There is also a consistent stream of research since the early nineties which shows that local communities, especially marginalized groups within communities, will face significant risks arising from climate change impacts, and often have limited resources with which to adapt to future impacts (IPCC 2014). Growing confidence in decentralization and community institution has given rise to the widespread promotion of the concept and practice of community based adaptation (Reid & Huq, 2007). Despite the wider acknowledgment of local institutions and governance in environmental management and climate adaptation (Adger, Paavola, & Huq, 2006; Agrawal, 2010), there has been little investigation into the linkage between community forestry institutions and the adaptive capacity of rural communities to climate change, particularly with reference to marginalized groups.

Increased reliance in community rests on the inherent capability of

local communities to anticipate, prepare for and respond to climate related events (Adger, 2003). However, the concept of collective action that underpins the community approach usually presupposes having a shared aim, while heterogeneous societies may have a range of different goals and aspirations, with different groups within the community facing differentiated vulnerability conditions (Ribot, 2010). Communities have also become increasingly “delocalized” with local community actions being heavily shaped by wider social and environmental contexts (Ojha et al., 2016). While “local community” has been a useful notion in decentralizing institutional arrangements for adaptation, the effectiveness of CBA in terms of equity and fairness in the outcomes of adaptation remains limited, much like its weak relevance for mitigating the vulnerability of marginalized groups to climate change (Ayers & Forsyth, 2009; Dodman & Mitlin, 2013). This gap becomes particularly pertinent when vulnerability is seen as more of a household level phenomenon than a community one (Chambers, 2006; Kelly & Adger, 2000). In this context, two questions that become highly relevant are: (i) how a community-level organization and its institutions interact with household level activities, and (ii) how such interactions shape differential consequences in relation to varying household adaptive capacity in the face of increasing climate risk. In this paper we investigate the links between community institutions and the adaptive

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capacity to climate change of marginalized groups, taking the case study of community forestry (CF) in Nepal.

The paper is organized as follows. In Section 2, we review the current research on the links between community institutions and adaptive capacity, with a particular focus on marginalized groups. We also briefly outline community forestry by drawing on recent research on adaptation to climate change and on the empowerment of marginalized groups. By demonstrating that there is a research gap, we also identify key aspects of adaptive capacity to be used in the analysis. In Section 3, we present a description of the case study and its relevance to the research investigation. In Section 4, we explain our field research approach. In Section 5, we present the results of the study and show how CF institutions have affected resource availability, endowments, entitlements and the capabilities of forest users. We also show how CF institutions are leading to particular situations of marginalization and reveal differentiated vulnerabilities by considering a range of measures such as availability and accessibility to resources. In Section 6, we discuss the implications of our findings for adaptation of marginalized groups within the community. In so doing we engage with the ongoing theoretical discussion about whether, or how, marginalized groups in society could benefit from investment in adaptation mechanisms. Finally, we conclude the paper in Section 7 with some policy implications.

## 2. Adaptive capacity, community institution and marginalization – A theoretical linkage

In this study, adaptive capacity is defined as *the set of resources and the ability to utilize those resources as a prerequisite to adaptation* (Nelson, Adger, & Brown, 2007). In generic sense, adaptive capacity is the precondition that enables adaptation and is determined by a range of attributes (Table 1), including institutions and governance mechanisms, equity, entitlements, social networks, social capital and collective action (Adger, 2003; O'Riordan & Jordan, 1999; Sen, 1981; Smit & Wandel, 2006; Yohe & Tol, 2002). Institutions and governance are critical aspects of adaptation to climate change (Engle & Lemos, 2010; Ojha et al., 2015), with local institutions being particularly important as climate change is largely experienced at a local scale, affecting the access of households and communities to endowments and entitlements (Agrawal & Perrin, 2008).

To understand adaptation of marginalized groups through community forests, there is a need to consider “environmental entitlements”, or the definition and allocation of resource access in a society with differentiated needs and interests (Leach, Mearns, & Scoones, 1999). Environmental entitlement includes **endowments**, the rights and resources of different social actors and **entitlements**, the set of utilities derived from environmental goods and services over which social actors have legitimate effective command and are instrumental in achieving well-being (Leach et al., 1999). This form of entitlement is important in

considering the role of resource access in the capacity to adapt to climate change.

Differentiation in resource entitlements is often the result of politics and power dynamics in the society. Marginalization as an outcome of socio-economic power differentiation in the nexus of society and environment is a recurrent theme in political ecology (Blaikie & Brookfield, 1987; Robbins, 2012), and marginalization continues to be a challenge in social and economic development. In Nepali society, the process of marginalization is historically reinforced through cultural, political and economic processes (Bennett, 2005; Nightingale, 2006; Regmi, 1999) and while the local institutions of community forestry are an excellent example of decentralized governance, they are still affected by, and often reinforce, differentiated power relations at local and national levels (Malla, 2001; Ojha, 2014). Therefore, it becomes important to understand how local organizations and institutions, including the wider politics, shape such local entities and mediate the gap between marginalization and adaptive capacity.

In this paper, marginalization is defined in terms of gender, caste and economic conditions, and these axes of differentiation are not independent of one another. In Nepal, the multifaceted processes of social marginalization are characteristics of the social system and the political organization. Differentiation in Nepalese society and its implications for livelihood strategies are historically entrenched in feudal and patriarchal institutions and cultural norms (Bennett, 2005) and manifested in many forms of societal discrimination. The caste system has resulted in deep rooted differentiations in socio-economic outcomes which inhibit the development of overall social capacity of economically marginalized groups such as the Dalit (Jones & Boyd, 2011). A multitude of undesirable implications of gender and social exclusion have been widely recognized in resource use and access under community forestry arrangements (Nightingale, 2006; Nightingale & Imani, 2012). Women in Nepal fall behind men in many areas such as literacy, labor division and access to, and ownership of, land and resources. The intersection of class, wealth and gender is strongly linked to the process of access to resources (Nightingale, 2011; Regmi, 1999), and consequently affects adaptation to external shocks such as climate change.

Community institutions have been considered important mechanisms within society to manage environmental and societal challenges through applying sets of rules to facilitate coordinated action and to solve the problem of free-riding (Ostrom, 1990). Community forestry in Nepal has evolved as an important local institution in the nexus between environment and society (Pandit & Bevilacqua, 2011). It began at a time of perceived environmental crisis (Blaikie, 1985; Ives & Messerli, 1989) because of the failure of centralized forest governance (Gilmour & Fisher, 1992; Mahat, Griffin, & Shepherd, 1986) and is now lauded as an example of excellence in building local institutions for natural resource management based on decentralized governance (Agrawal & Ostrom, 2001; Ojha, 2014; Timsina, 2003) with over 19,000 community forestry user groups (CFUG) covering one-third of Nepal's

**Table 1**  
Determinants of adaptive capacity in linked systems of society and environment.

Attributes of adaptive capacity	Linkage in community forestry context	Supporting references
Legitimacy in governance	Devolved authority to local community to protect, manage and utilize forest as well enhance their legitimacy and sense of ownership	(Gupta et al., 2010)
Resource availability and accessibility	Improvement in resource condition through collective effort, accessibility through regulation	(Adger, 2003; Gupta et al., 2010)
Equity in decision making	Additional benefits directed towards marginalized	(Thomas & Twyman, 2005; Gupta et al., 2010)
Social inclusion and diversity	Representation of diverse socio-economic classes	(Gupta et al., 2010)
Collaborative leadership	Devolution of power to local community provides opportunity for emerging leaders to grow	(Folke et al., 2005; Gupta et al., 2010)
Trust	Participation of local people into decision making process establishes and strengthens trust	(Gupta et al., 2010)
Social network	Community forestry fosters social network through its linkages at different levels.	(Adger, 2003)

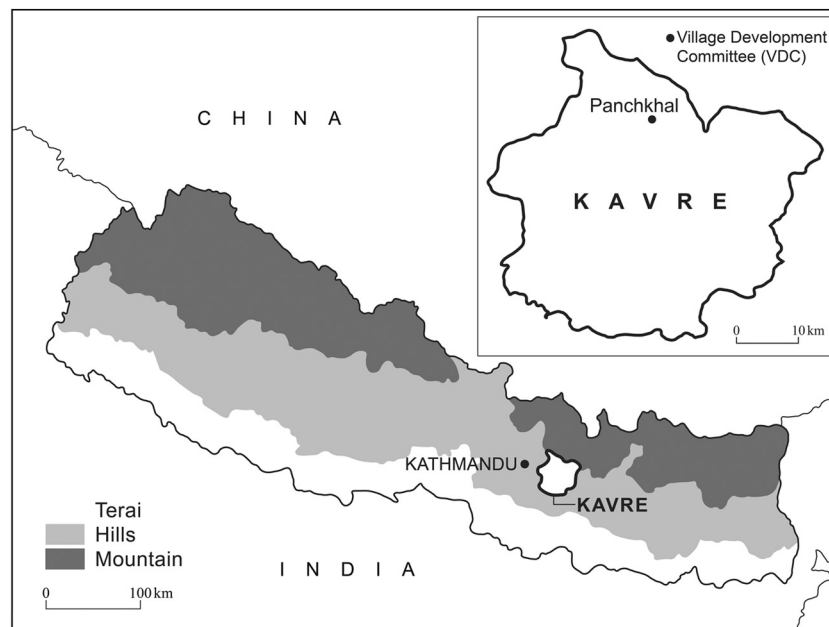


Fig. 1. Map of Nepal showing case study area.

population of 28 million at the end of 2014 (DoF, 2017). Despite the growing confidence in CBNRM, some have argued that genuine devolution of power to marginalized groups has been limited (Krott et al., 2014; Malla, 2001; Ojha, Cameron, & Kumar, 2009), with continuing unfair resource distribution, elite dominance and exclusion of marginalized people in the decision making process (Adhikari & Di Falco, 2009; Persson & Prowse 2017). In this paper, we examine these issues through an in-depth case study of the Thuli CFUG, in particular relation to the adaptive capacity of marginalized groups.

### 3. Case study description

Thuli CFUG has received several awards for achieving “good governance”, and thus provides an important case to explore about the institutional aspects of CF that may contribute to adaptation. Moreover, Thuli CFUG is unusual in that it explicitly changed its institutional rules to hand over executive power to a women-only committee – a process of empowerment of a marginalized group that makes the case highly relevant to this research. This peri-urban community includes other groups of marginalized people, including the so-called lower caste, ethnic minorities, and the land-poor farmers, and these have the opportunity to be involved in the CFUG. The case study area (Fig. 1) is also in a region that is experiencing a high degree of variability in climate and facing considerable future change. The increasingly diverse livelihood strategies – including commercial agriculture and out-migration for jobs – and the changing dependence on community forests also make the case relevant to the research question. As such, Thuli CFUG serves as a good test case for an investigation into whether institutional change can improve the capacity of marginalized groups, with significant intentional institutional decisions made to “empower” the marginalized groups especially women.

Thuli CFUG is located in Panchkhal Municipality, situated north east of Dhulikhel, of Kavre district in central Nepal. Kavre is one of the first few districts to implement the community forestry program (Gilmour & Fisher, 1992) and Thuli forest was handed to the CFUG in 1994, following the formulation of the Forest Act 1993. Thuli CFUG provides an opportunity to explore historical shifts in institutional arrangements and forest ecological conditions in the context of forest-people interactions. Since its establishment, Thuli CFUG has seen significant transformations in its institutional arrangements considering

social heterogeneity and the marked impact of climate change in the locality. The governance of the Thuli forest changed along with the changing national forest policy. Thuli, like other CFUGs in Nepal, is governed through a Constitution and a forest management operational plan prepared by the User Group (Pokharel, 2011). Decision making takes place through interactions and agreement among the General Assembly, the Executive Committee, and the Advisory Group. The Executive Committee generally meets every month to discuss and decide on any issues requiring immediate attention, with such decisions prevailing until the next Assembly decisions. When there are issues beyond the jurisdiction of the Committee, these are put forward to the General Assembly for approval. Geographic representation has been used as the basis for nominating members to this Executive Committee in order to acknowledge the variety of needs in different parts of the village.

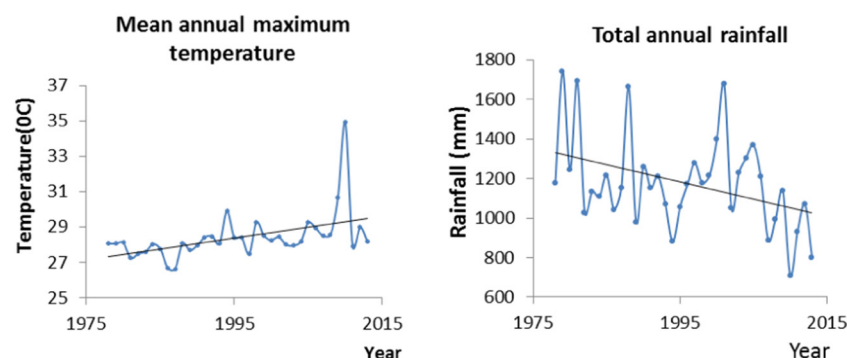
Panchkhal is one of the major regions supplying vegetables to Kathmandu and hence size of the landholding is one of the key indicators to wealth and socio-economic status of people. Having shifted from subsistence farming to commercial vegetable production, increasing agricultural productivity has become a key livelihood concern for most of the households in Panchkhal. Easy access to markets via the Araniko Highway, constructed in the early 1970s, has expanded the region's potential for vegetable production. People use the community forest to support their agricultural activities by collecting materials such as grass, leaf litter and firewood, although the nature of dependence varies across groups. More than 500 households depend, in part, upon 63 ha of forest area. However, dependence and usage vary considerably among the different groups, making it an interesting situation to understand how local institutions have regulated the asymmetries of resource distribution across heterogeneous user households. Considering socio-economic context of Nepalese society, we identify Dalit, women and the landless as marginalized groups in this study. This composition was visible in local statistics, which also indicates contrasting capability attributes of various groups. For example, that women's literacy in this region is 67% while it is 85% for men (CBS, 2011). The *Brahmin* and *Chhetri* castes continue to occupy a superior economic and political position in the community compared to *Dalits* and *indigenous groups*, with the social difference being manifested in parameters such as ownership status. Moreover, the occupations and livelihood strategies of people in this area are noticeably segregated based on their caste (Table 2).

**Table 2**  
Differentiated forest based interest for different caste and ethnicity.

Caste/ethnicity	Current livelihood strategy
Brahmin ( $N = 287$ , $n = 48$ )	Agriculture (70%), Job (23%) and others including business and labor (7%)
Chhetri ( $N = 94$ , $n = 6$ )	Agriculture (57%), Job (36%), Business (5%) and labor (2%)
Dalit ( $N = 74$ , $n = 10$ )	Seasonal migration (40%), labor (20%), traditional occupation (18%) and agriculture (20%)
Indigenous: Newar, Tamang and Bhujel ( $N = 52$ , $n = 7$ )	Agriculture (65%), Business (25%) and labor (10%)

$N$  = Population and  $n$  = Sample.

Livelihood strategy as given in Constitution of Thuli CFUG (2013).



**Fig. 2.** Mean annual maximum temperature and total annual rainfall (1978 to 2013). Source: Department of Hydrology and Meteorology, Kathmandu, 2014.

The economy of this area is predominantly agrarian and people depend upon rain-fed irrigation. Thus, there is a potential for strong linkage between climate and livelihoods, as marked changes in average and inter-annual variability in rainfall patterns are identifiable in this region (Dixit et al., 2009). Panchkhal's climate is characterized by a monsoon climate with a dry season from October to May (Dixit, 2009). Climate data in Panchkhal region over the last 30 years shows a steady decline in total annual rainfall and increased temperature (Fig. 2).

#### 4. Study methodology

The research adopted a case study approach (Yin, 2009) to analyze the links between community level institutional arrangements and adaptive capacity of marginalized groups. Qualitative inquiry was the primary method employed to generate empirical evidence in the specific case study context involving one CFUG in Panchkhal District. Using a single but detailed case study offers a robust means to understand the implications of institutions and decision making processes operating at the nexus of society and environment. Over the period of more than six months during two visits in May 2013 and December 2014, We conducted 65 semi-structured interviews from across different caste and wealth categories, 10 focus group discussions (FGDs), several informal talks with non-forest users, direct observation of CFUG activities such as formal and informal meetings, and conducted transect walks (Chambers, 1994).

Interviews were guided by several open-ended questions that explored whether or how community forestry is relevant to the process of their adaptation in relation to predefined attributes of adaptive capacity (Table 1). We ensured the concerns of marginalized people by conducting ten FGDs with marginalized groups. FGDs focused on how they cope with climate change; and what impedes their adaptation as well as how vulnerability and adaptive capacity are differentiated among the different groups based on their wealth status, caste/ethnicity and gender. People's involvement in different livelihood activities was closely observed during the transect walks through the forest plantation and other land uses in the locality. Non-members to CFUG (encountered

during transect walks) were also interviewed in order to explore the reason behind them not having membership of CFUG despite living very close to the forest.

Qualitative data analysis software (NVivo 10) was used to organize the unstructured qualitative data and for overall data management, including coding and categorizing codes into the broader themes. Coding was applied to all the transcripts at three levels (open, focused and axial coding) (Strauss & Corbin, 1990) before they were categorized into themes. Despite the open coding done at the beginning, it is important to note that codes (synonymous with nodes in the NVivo terminology) were not randomly created. Instead, they were created on the basis of the epistemological stance that there is existing knowledge of adaptive capacity and that there is also an increasing level of consensus on the fact that 'climate change is happening'. However, our analysis used relational techniques to discern linkages (or disconnect) between institutions and adaptive capacity of the marginalized groups. Moreover during data analysis, we recognize that climate vulnerability is socially constructed, resulting in differentiated outcomes in different socioeconomic, political and cultural contexts (Sapkota, Keenan, Paschen, & Ojha, 2016).

#### 5. Results

Results are divided into three subsections. In the first, we present findings on the different socio-economic classes we found in the study area. In the second, we present how community institutions have shaped adaptive capacity across different household classes, including gender dimensions of this linkage. In presenting contributions to adaptive capacity, we discuss the significance of relevant institutional features. In the third sub-section, we present an analysis of how adaptive capacity of marginalized groups is linked to various institutional arrangements, identifying major barriers. This is anchored around three themes that emerged during analysis: *the tendency to maintain the status quo*, *the restrictiveness of regulatory mechanisms* and *the lack of recognition of pre-existing socio-economic conditions in community institution*.



**Table 3**

Socio-economic classes and their characteristics in relation to community forestry dependence and representation in decision making.

Socio-economic classes	Dependence on community forest for forest products	Distinct livelihood feature of different classes	Representation in Executive Committee (EC)	Representation in Advisory Committee (AC)
			Total (n) = 11	Total (n) = 6
Large landholder farmers (n = 7)	Low	Agriculture by shared cropping (landowner) & multiple income sources	3	4
Medium landholder farmers (n = 26)	Medium	Agriculture	3	1
Small landholder farmers (n = 23)	High	Vegetable production and laborer	3	1 (Politician)
Landless (n = 9)	Very high	Shared cropping (tenant), laborer	0	0
Dalits				
- Blacksmith	Very high		0	0
- Laborer	Low		0	0
- Seasonal migrants	Low		0	0
- Small landholder	High		1	0

Details on occupation, landholding size, forest dependence and representation in EC and AC adapted from constitution of Thuli CFUG 2013.

### 5.1. Dynamics of social marginalization in Thuli Community Forest User Group

In Nepal, size and type of landholding (i.e. *Khet* or *Bari*<sup>1</sup>) are strongly related to the social production of classes, consequently affecting the overall well-being of different segments of the society (Regmi, 1999). Based on the landholding size and occupation, we categorized households of the study area into four socio-economic classes (Table 3): 1) large landholder farmers (LLFs) who have agricultural lands more than 20 *Ropanis*,<sup>2</sup> 2) medium landholder farmers (MLFs) who have 10–20 *Ropanis* of land, 3) small landholder farmers (SLFs), have less than 10 *Ropanis* of land, and 4) landless people. Size of landholding used in this study is much less than the standards used in general in other Nepalese context.

LLFs adopted more diversified livelihood strategies than any of the other groups and also displayed more flexibility in deciding on cultivation practices, such as whether to employ laborers or to lease land for share-cropping. LLFs used a variety of technologies (such as water pumps, ploughing tractors, hybrid seeds and pesticides.) in order to adapt to the climate induced stress such as erratic rainfall or prolonged drought. On the contrary, MLFs have a more limited flexibility in deciding on cropping practices; have less irrigated land and a higher dependence on the community forest. Unsurprisingly, these two classes have easier access to drinking water than the others, as they have either private water wells or a communal water source located close to their dwellings.

SLFs have a high dependence on the community forest as they do not have alternative sources of forest products to support their livelihoods. SLFs do not have irrigated land (*Khet*) and they usually opt for vegetable production, usually a high yielding variety of tomatoes suitable for dry and marginal land. As observed during the transect walks, and as was evident from interviews, their livelihood is severely affected by climate induced stresses, mainly related to water scarcity for drinking or irrigation. They also opt to work as wage laborers or become tenants and practice share cropping with LLFs.

What emerged as an interesting revelation is that there was very limited livelihood-related association between landless people, mostly Dalits, and the community forest. Many of the landless people encountered in the transect walks shared with the research team that they do not have membership in the CFUG or use the community forest in any meaningful way. “Only for grasses and some firewood, we can't afford to pay membership fees” Participant - 28, a landless Dalit woman, said in response to the question of why she had chosen not to become a

member of the CFUG.

Agriculture is not a traditional occupation for Dalits in Panchkhal. Even if they chose to, and were able to practice agriculture, their fields are small and are on marginal lands that lack irrigation. A very few Dalit households have similar characteristics to SLFs, but most of the Dalit families are distinctive in their livelihood practices. The majority of Dalits opt for either seasonal migration or work as laborers for LLFs and very few now practice their traditional artisanal occupations such as blacksmithing.

### 5.2. Institutional processes and adaptive capacity building across socio-economic classes

In this sub-section we look into whether, how and to what extent the institution of community forestry has contributed towards adaptive capacity of different forest users (Table 4). We present our results as different attributes of adaptive capacity across the five different socio-economic classes defined earlier.

#### 5.2.1. Large landholder farmers (LLFs)

These were found to support protection-oriented management of the community forest. Their preference for protection of community forest arose mainly due to the fact that they all own private land from where they can obtain forest products. As one of the large landholders explained,

*Forest condition is poor and we need to protect it. Even if the forest is open for extraction, we don't go to extract any forest products; rather we extract forest products from closer private sources.* (A member of ex EC and current AC and LLF, Participant - 22)

Adaptive capacity of the LLF group as a whole was therefore associated with their pre-existing socio-economic endowment, the ownership of agricultural and forest land. They were able to utilize the institutional benefits of CF for adaptation, for example through an access to social networks, having a greater trust in decision making and utilization of CF as a local leadership platform.

*It's only through my involvement in different training sessions organized by the CFUG, I came to know about sustainable farming including organic farming-* (Participant - 73)

Analysis of documents, records and interviews with members indicated that the Executive Committee had been dominated by these LLFs for most of the CFUG's history. Thus, the institutional benefits of CF mostly suited the interests of the LLFs and these people had developed a high sense of ownership and legitimacy regarding the governance arrangements for CF among LLFs compared to other users with lower socio-economic status. Not surprisingly, LLFs were also found to

<sup>1</sup> *Khet* is irrigated land and *Bari* is rain-fed terraced land.

<sup>2</sup> One hectare equals to 19.65 *Ropanis*.

**Table 4**  
Effects of community forestry institution on adaptive capacity.

Different forest users	Attributes of adaptive capacity and association with different users					Adaptation prospect through institution
	Trust	Equity	Legitimacy in governance	Collaborative leadership	Diversity and social inclusion	
Large landholder farmers	++	0	++	++	++	+
Medium landholder farmers	+	0	+	+	++	+
Small landholder farmers	+	0	0	0	+	+
Landless	–	0	0	0	0	0
Dalits						
- Blacksmith	–		–	–	–	–
- Labor	–		–	–	–	–
- Seasonal migrants	–		–	–	–	–

Positive, negative or neutral effects on different attributes of adaptive capacity were generated from interviews and focus group discussions based on how people compare before and after implementation of CF program.

be the most actively involved in General Assembly meetings, plantation activities, celebrations of Environment Day and the like.

#### 5.2.2. Medium landholders (MLFs)

These farmers also had a positive view of the CFUG institution and felt that it provided increased availability and accessibility of forest products. As a consequence, their involvement in activities that could support adaptation has increased over time. As one MLF and EC member said to us:

*It was through my involvement in CFUG activities such as participation in General Assemblies and EC meetings I came to realize importance of planning for the future* – (Participant, 2)

#### 5.2.3. Small landholder farmers and landless

Participation of SLFs in CF activities was constrained by their economic condition as they had to sacrifice their wages to attend CFUG related activities including General Assembly meetings. The benefits of being involved in the CFUG, other than for a slightly increased access to forest products, were not considered to be worth the annual membership fees. One of the most interesting finding of this study is that, landless HHs are the least benefited from CFUG institution and forest resources managed by the same institutional provision.

#### 5.2.4. Dalits

A group of Dalit men when asked about how they benefit from Thuli CF, expressed their dissatisfaction about community forestry and its benefits, with one saying: *“It offers no benefits to my livelihood”*. This reflects a general view among this group that no genuine effort is made to provide for the needs of the poor and marginalized in CF arrangements. This dissatisfaction is demonstrated by the fact that some Dalit households are not members of the CFUG, despite living very close to the forest or not participating in General Assembly meetings, even if they become members of the User Group.

Another factor causing disadvantages and disconnection from community institutions is that most of the Dalit people have opted for seasonal migration to work in brick factories in the city to maintain their livelihoods. During this period outside the village, they either take their family along or leave their children behind with relatives. If they take them along, this prevents their children from attending the school for a few months; and if they are left behind their school attendance will be affected because they do not get sufficient parental care and attention. In either case, it leads to disadvantage that is passed on to the next generation.

#### 5.2.5. Women

Some differences in gender responses to participation in adaptation activities were noted, but these differences mainly occurred between classes. For example, Dalit women had greater autonomy in decision making at household level in comparison to women in other socio-

economic classes. For women in LLFs, statements such as *“my husband goes to participate in CFUG General Assemblies”* – (Participant – 23) were very common.

The formation of the women-only EC was associated with an increased sense of legitimacy and ownership of the CFUG institutions among women. As one woman member from a MLF said, *“Now it feels like our own and unlike before, now I attend General Assembly”* (Participant – 66). During interviews, there was a widespread view among members of the EC and the AC that women's participation in GA and their influence over decision making has significantly increased. However it was also observed that there were limited changes in participation of women from LLFs associated with restructuring of the EC.

Overall, while participation of women has changed significantly, the benefits for marginalized people have been limited. For example, despite Dalit women having fewer restrictions within the family, there was only one Dalit representative on the EC. Illiteracy and lack of self-confidence were identified as two major reasons that have constrained Dalit women's involvement in this decision making body of the CFUG. As a Dalit key informant said:

*Most of the women in this locality can't even read notices published by CFUG, sometimes leading to miss important CFUG event* (Participant – 78).

### 5.3. Linkages between local institutions and processes of marginalization

While increased availability of resource endowments and increased adaptive capacity of LLF and MLF socio-economic classes have been facilitated through the community-based organization and its institutions, we found limitations that have hampered adaptation of the marginalized groups. Three themes emerged from FGDs and interviews with marginalized groups that revealed major barriers to livelihood outcomes and consequently adaptive capacity to climate risks. These themes are highly interrelated in practice and yet can be analytically differentiated: *the tendency to maintain the status quo, the restrictiveness of regulatory mechanisms and the lack of recognition of pre-existing socio-economic conditions in the CF organization and institutions.*

#### 5.3.1. The tendency to maintain the status quo

This theme is relevant to understanding the adaptive capacity of women. Even though the organizational structure of the Executive Committee changed, there have been no changes in any of the broader societal processes at community or household levels that facilitate women's engagement with, or control of, the community institution. While the composition of the Executive Committee changed from a mixed group to all female, a male-dominated Advisory Committee has been created that, in some ways, reinforces male power. During observations of monthly meetings, men exerted significant influence in their “advisory” role, providing clear evidence of the continuation of their position of power in this patriarchal society.

Some respondents told stories about this change, highlighting that the women-only Executive Committee was purely cosmetic and implemented only as a strategy to appeal to outsiders and attract funding from donors, rather than to genuinely transfer decision making power to women. The forest itself was also not seen as a significant source of economic empowerment. In response to the question of why women were given management responsibility, some of the male respondents expressed the view that *“the value of this forest is limited only to extraction of grass, leaf litter and firewood, and the reward is not attractive enough for us to engage”* (Participant - 42).

While there have been some substantive changes in the rules since women became the officials of the Executive, these have proven hard to maintain. For example, the women-only Executive Committee decided in 2013 to recommence harvesting of trees for firewood extraction, which had been discontinued for three years by the previous Executive Committee. However, due to their strong influence, the local male elites halted forest harvesting, ostensibly because of their concern about forest degradation.

Given that these land-rich farmers fulfilled their forest-related needs from private sources and could use alternative fuel sources such as liquid petroleum gas and bio gas they were not impacted by the decision to promote the conservation aspects of community forest management.

Elite men had a negative attitude to the decisions made by the women EC. For example, one of the former male EC members stated that *“women are going to destroy what we saved”* (Participant – 22). One of the women Executive Committee members expressed *“Our capabilities to manage forest sustainably are questioned, thus we have halted this practice until decided at the General Assembly; this year we didn't cut trees”* (Participant – 64).

The pressures for *maintaining the status quo* were reinforced by preserving power relations at the household level. All the women in the Executive Committee reported that increased social responsibility in the CFUG did not lead to any change in their household responsibilities. When they have to attend CFUG meeting, they have to wake up earlier in order to manage household chores before attending the meeting, increasing their overall workload.

### 5.3.2. Restrictive rules and regulations

*Restrictive rules and regulations* can hinder adaptation, particularly for households with few resources. A common expression among forest users (who have labor based livelihoods) was related to relinquishing access to forest products because they would lose wages if they collected forest resources at the designated times, lowering their overall income. Restrictions around the timing of access to forests mean that people may not be able to schedule jobs at times other than when forests are open for resource collection.

Enforcing strict regulatory mechanisms in the CFUG was perceived by community as central to improving forest ecological conditions and to meeting a wider range of needs for forest products. A local political leader said *“improvement of the forest condition was made possible only through collective efforts of each and every household member of Thuli CFUG”* - (Participant - 60). However, members of the marginalized groups considered that while current regulations may improve the overall availability of forest products, the regulations made limited contribution to the factors that define their adaptive capacity. Marginalized groups generally have no private sources of forest products such as grass, leaf litter or firewood and their livelihoods depend on more than what they get from the community forest. The amount they obtain from their current harvesting activities is often not enough to survive on. While distributing the current resources equally among all the users responds to wider community needs, it limits the capacity of particular groups to respond to their own everyday needs.

Consequently, the notion of equity is not fully realized in resource distribution, because the proportional dependence on community forest products is differentiated among households with different sets of endowments. For instance, firewood is used by wealthier households to

**Table 5**

Differentiated interests in forest based materials and benefits.

Caste/ethnicity	Ranking of interest
Brahmin	Leaf litter, grasses, firewood, NTFPs and timber
Chhetri	Leaf litter, grasses, firewood, timber and NTFPs
Dalit	Income generating activities, timber, firewood, grasses and leaf litter
Indigenous	Eco-tourism, leaf litter, grasses and timber

support livestock production in the preparation of animal feed. Their capacity to produce income from livestock is dependent upon a household being endowed with sufficient land to provide grasses and fodder throughout the year. On the other hand, while poorer households use firewood primarily for cooking, their allocation from the CF (approximately 300 kg per household) is not enough to provide sufficient fuel to support the average household of 4–5 members. In addition, there is no further opportunity for them to convert their allocation of forest products into a wider economic endowment. Thus, regulations that are nominally built around equity and fairness are actually supporting and enhancing the existing gap between wealthy and poor.

### 5.3.3. Lack of recognition of pre-existing socio-economic conditions

A *lack of recognition in the CF institutions of pre-existing socio-economic conditions*, for instance the identity-based occupations of the Dalit people, is a further impediment to adaptation. Community forestry is primarily regarded and used as a supplementary source of resources to support agrarian livelihoods; the needs of other groups and occupations are not really considered. For instance, with the inception of CF, the livelihood of a Dalit blacksmith family was affected because the community considered that cutting trees for any purpose leads to negative outcomes and their access to traditional sources of wood for their occupation was curtailed. Thus, while the Thuli CF received awards from national and local organizations for its success in conservation, there has been little consideration of the impacts on sections of the community of this change in management. Moreover, this clearly indicated the conservation mindset of more powerful actors involved in forestry management.

The benefit that people receive from their endowments from current management of the community forest therefore depends on their pre-existing socio-economic condition. People, who have sufficient agricultural lands and grazing animals, benefit more from the forest because of the availability of leaf litter and grass for their livestock. People who do not have cattle and do not practice farming are less able to convert their share of the forest endowment into positive livelihood outcomes. This is reflected in the differing interests in forest based materials and benefits, based on their livelihood strategies, and these, in turn, are determined by their caste and ethnicity (Table 5).

Thus, the institutional mechanisms of the CFUG have not considered livelihood opportunities that are better suited to the conditions of marginalized groups. Even when attempts have been made to address this need, they are not well targeted. For instance, the CFUG established a revolving fund to help Dalit households. Each individual in a group of 5–6 members was given a loan of 5000 Nepalese rupees at a nominal interest rate to raise goats. However, CFUG regulations only allowed cutting grass in the CF 2–3 times a year. Not having access to agricultural land or a private source of fodder meant that to maintain the goats the owners needed to extract grass illegally and most of those respondents expressed dissatisfaction about this inconsistency. It can be addressed by recognizing marginalized groups as organized sub-groups within the CFUG and encouraging such subgroups to present more organized and collective voice in the CFUG decision making.

## 6. Discussion

The case study presented here has demonstrated a range of ways through which community institutions regulate community members'

access to livelihood opportunities; these regulations may improve or hamper the adaptive capacity of marginalized groups facing growing climate risks. The case study of a Nepalese community forestry group supports the previous understanding that a link between adaptive capacity and community institutions exists in the form of a nexus between society and environment, which is usually complex and multi layered. This case also reinforces the point that “community” is not a homogenous entity, that institutional processes are not free from power and politics which favor the powerful and disadvantage the marginal (Nightingale, 2011; Ojha, 2006; Thoms, 2008; Schusser et al., 2015), and that a community-based approach may potentially worsen the existing disparity between marginalized and elite groups (Nightingale, 2011). Several themes emerged that are relevant to the current debate on the triangular interface among community institutions, adaptive capacity, and social marginalization.

The first theme is related to finding an appropriate policy response to address community-scale marginalization. Research showing how socio-economic heterogeneity tends to produce differentiated interests within communities (Adhikari, Di Falco, & Lovett, 2004; Chhetri, Johnsen, Konoshima, & Yoshimoto, 2013; Paudyal, Baral, & Keenan, 2018) is yet to be translated into policy and institutional development efforts towards enhancing equity and fairness at the community level. On the contrary, regulatory mechanisms often obstruct community responses by restricting the use of or access to resources. Understanding the linkage between restrictive institutions and adaptation is not straightforward; rather it is complex and multi-layered. In such situations, it is explicit that conflicting values cannot be addressed simply by devising a common set of rules that fits all in community for resource management and utilization, nor is there an easy way to arrive at consensus rules.

The CFUG, while outwardly projecting a progressive approach (through seeming to empower women), and responding positively to the needs of farmers and landowners, remains less responsive to the concerns of the marginalized groups within the communities. Moreover, institutional arrangements such as flexibility and responsiveness to the wider needs that were conducive to adaptation were generally not found to contribute adaptation benefits for marginalized groups. This finding implies that even innovative institutional arrangements as suggested by Ostrom (Varughese & Ostrom, 2001) hold limited promise in such highly differentiated societies, unless designed specifically to address the needs of marginalized groups.

In such situations, revisiting the concept of marginalization along multiple axes of social discrimination such as gender, caste or economic condition certainly leads to analytical gains. But how these markers of differentiation play out in the process of implementation becomes the key. Integrating other non-material dimensions of marginalization such as identity, willingness to participate in decision making and social recognition are also important aspects of understanding adaptive capacity. Given these complex dynamics of social marginalization and differentiation, any initiatives for social inclusion should recognize that the structural fixes, such as through increasing the number of representatives in the decision making committee, do not automatically lead to the empowerment of the marginalized, much less to their adaptive capacity building, unless there is a fundamental change in the regime of resource access and entitlements and the overall socio-political standing of the marginalized groups of society (Watts, 1991; Watts & Bohle, 1993). These constraints have led to alternative adaptive strategies such as migration and occupational change, with varying consequences for the different sectors of the communities (Sapkota et al., 2016). Possible changes in the regime of entitlement could include providing marginalized groups an equitable access to forest products from community forestry, financial capital and livelihoods opportunities.

In the context of Nepal, as the case study shows, marginalization is an outcome of a socially structured and historically sustained hierarchy of power relations, which cannot be ignored in a community based

adaptation approach. This is particularly important in Nepal as studies show that climate change adaptation policy is driven by international actions and is informed by the global science of climate change, while the voices of local communities vulnerable to climate change are absent (Ojha et al., 2015). Based on the findings set out above, we argue that socio-economic heterogeneity within the community is an important challenge that must be considered more seriously by scholars and policy makers who are involved in community based adaptation and local institutions and climate change.

The second and related theme emerging from this case is the link between the devolution of resource management rights and adaptive capacity. The case of this Nepalese CFUG represents a situation with a high level of power devolution to the local level. But as indicated by others, the evidence shows that a devolution of power to community level does not automatically lead to the management of resources in a way that reduces the vulnerability of the community as a whole, much less of any marginalized groups. The formal system of devolution adopted in Nepal is a centralizing regime in practice (Ojha et al., 2009; Sunam, Paudel, & Paudel, 2013) as the actual forest management practices are shaped not so much by the community but through principles and rules imposed by actors beyond local level (Schusser et al., 2016) such as the government forest officers. This means that the formal account of community based resource management and hence adaptation initiatives are embedded in the multi-scale politics and governance regimes. There is thus a need to look at the authentic autonomy a community group enjoys when trying to understand the potential of community action in enhancing adaptive capacity.

The third theme of interest concerns the presumed role of ecological conditions in social equity, and the likelihood of gains in adaptive capacity. Our evidence from the Nepal case challenges the view that improvement in ecological processes is likely to contribute to the adaptive capacity of households and communities (Munang, Andrew, Alverson, & Mebratu, 2014). The Thuli community has seen a marked improvement in the indicators of condition of the forest over the past two decades such as stocking level, regeneration and forest canopy height. These changes potentially lead to improved ecological resilience. But we did not find any evidence to show that the improvement of forest condition and diversity has led to the enhancement of the adaptive capacity of marginalized groups. We further examined this during a field visit in 2017, asking key informants whether marginalized groups could access timber from forest to rebuild their houses damaged by earthquake that occurred in 2015. A common response revealed that, no timber resources was distributed to any households in order to avoid dilemma of who to distribute and whom to exclude, while the resource is limited and not sufficient for all the affected households. Hence, it was explicit that the ecological gains are not automatically translated into human benefits, such as improved livelihoods and hence adaptive capacity, unless the necessary institutional arrangements are devised to recognize the specific vulnerability contexts of disadvantaged groups; such arrangements must be incorporated into the revision of forest management plans and operations in order to address the needs of these groups. This suggests that institutional questions become paramount in ecological resilience thinking if we intend to recognize a concern for equity in adaptation.

The fourth theme that we find important in our study relates to access to knowledge and information. There is an established body of knowledge which shows that genuine representation of marginalized groups in decision making is hampered by their limited knowledge (Agrawal & Gupta, 2005) of the complex conditions determining vulnerability and the perception of their capacity to change these conditions. Moreover, not getting benefits during the crisis period means limited incentives for marginalized groups to be associated with community forestry institutions. This not only affects their representation in community institutions, but also loosens social harmony brought about by community institutions.

The final argument that emerges from the case is the demonstration



of the co-existence of multiple vulnerabilities within a community. We recognize that critical social studies and political economy viewpoints have shown that vulnerability is seen as a condition of exposure, susceptibility, and coping capacity which is historically shaped by the processes of differential entitlements, political economy, and power relations (Ribot, 2014; Sen, 1981; Chomba et al., 2015). Our analysis reinforces the relevance of such critical approaches, but also demonstrates the need for more serious attempts to unpack communities in order to understand these multiple vulnerabilities and recognize the adaptation possibilities for different groups within the communities. Treating the local community as a radical alternative to either ecosystem-based or state-centric strategies of adaptation masks the important issues related to differences and the consequent marginalization within the community. Critical social science and political economy approaches should be able to simultaneously look inside the community and then unravel the complex web of social and political relations operating at multiple scales (Ojha et al., 2016), hence shaping the differential adaptive capacity of differentiated socio-economic groups.

## 7. Conclusion and implications

This study analyzed the potential of community institutions to enhance the adaptive capacity of marginalized groups in heterogeneous societies facing climatic vulnerability. We explored this in the context of Nepal's community forestry, through a case study of a community forest user group in the middle hills in central Nepal. However we acknowledge that our conclusions, which are based on a single case study method, may need to be tested across wider contexts for further validation. We found that CFUG institutions have, to some extent, improved the adaptive capacity of the whole group, especially of the more wealthy and powerful members, but have minimal or even negative impacts on marginalized groups. A definitive conclusion is that community institutions do not automatically lead to the enhancement of adaptive capacity of marginalized groups. This finding questions the assumptions of the community based adaptation approach that is considered so promising in the contemporary adaptation discourse. With this conclusion, the study challenges the view that the community based adaptation approach works for all members because communities are more capable of responding to and reducing vulnerability through local knowledge and networks (Reid & Huq, 2007).

The Nepal case also demonstrates various opportunities through which decision makers at the local community level can become more responsive to the needs of marginalized groups in relation to various climatic risks experienced by the communities. These opportunities are related to how marginalized groups become critically aware of the conditions of vulnerability, and also to what extent they are aware of their own ability to articulate concerns at community level decision making. Adaptive capacity of the local groups is not entirely a local phenomenon; it is also linked to the ways in which national policy and support agencies recognize the multi-scalar nature of community based adaptation dynamics.

A key implication of these findings in the context of community forestry is that policy makers have the opportunity to consider the effects of community institutions not only on forest management, but also on various aspects of climatic vulnerability of marginalized groups. Forest managers could consider how forest management actions and consequent ecological processes enable or constrain the capacity of the poor and marginalized groups to cope with climate risks in specific localities. This could mean, for example, looking at how greater species diversity and ecological resilience that have been achieved through community forestry can better serve vulnerable groups and how access rules can be made more responsive to the needs of these groups and the circumstances in which they have to live. Using a single case study might pose limitations in making policy claims. Nevertheless, we have used a rich description of the case study which allowed exploring of the interdependence between the social and ecological processes across

multiple scales, from household through community to sub-national levels.

We conclude by arguing that inclusive adaptation can be achieved only through a multi-pronged strategy in which attempts are made to ensure the meaningful participation of marginalized people in decision making, positive discrimination is exercised in redistribution of materials resources in the public domain (such as setting aside areas of forest specifically for their use), and moving from the present blinkered focus of forest management on conservation and protection to an approach to sustainable and active utilization of forest resources based on the livelihood needs of different marginalized groups.

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